



Federal Communications Commission
Washington, D.C. 20554

May 19, 2011

DA 11-911

Small Entity Compliance Guide

Measurement Standards for Digital Television Signals

Report and Order
FCC 10-195
ET Docket No. 06-94
Released: November 23, 2010

This Guide is prepared in accordance with the requirements of Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996. It is intended to help small entities—small businesses, small organizations (non-profits), and small governmental jurisdictions—comply with the new rules adopted in the above-referenced FCC rulemaking docket(s). This Guide is not intended to replace the rules and, therefore, final authority rests solely with the rules. Although we have attempted to cover all parts of the rules that might be especially important to small entities, the coverage may not be exhaustive. This Guide may, perhaps, not apply in a particular situation based upon the circumstances, and the FCC retains the discretion to adopt approaches on a case-by-case basis that may differ from this Guide, where appropriate. Any decisions regarding a particular small entity will be based on the statute and regulations.

In any civil or administrative action against a small entity for a violation of rules, the content of the Small Entity Compliance Guide may be considered as evidence of the reasonableness or appropriateness of proposed fines, penalties or damages. Interested parties are free to file comments regarding this Guide and the appropriateness of its application to a particular situation; the FCC will consider whether the recommendations or interpretations in the Guide are appropriate in that situation. The FCC may decide to revise this Guide without public notice to reflect changes in the FCC's approach to implementing a rule, or to clarify or update the text of the Guide. Direct your comments and recommendations, or calls for further assistance, to the FCC's Consumer Center:

1-888-CALL-FCC (1-888-225-5322)
TTY: 1-888-TELL-FCC (1-888-835-5322)
Fax: 1-866-418-0232
fccinfo@fcc.gov

Measurement Standards for Digital Television Signals Compliance Requirements

1. Overview of the Rules and Measurement Standards

The Satellite Television Extension and Localism Act of 2010 (STELA) extends the statutory copyright license for satellite carriage of distant broadcast signals and related provisions in the Communications Act, and also amends certain provisions of the Communications Act and the Copyright Act. As part of the statutory regime, certain satellite television subscribers are eligible to receive distant network signals. That is, satellite TV subscribers whose provider does not provide local channels for the subscriber's market area and who are unable to receive local TV network signals over the air due to insufficient signal strength are eligible to receive a distant (or out-of-market) network signal. The statute requires that first a predictive model must be used to make the determination of eligibility. In instances where the predictive model predicts sufficient signal strength at the subscriber's location, but the subscriber still cannot receive the local channels over-the-air, an actual measurement may be requested. The measurement standards specify how such tests should be conducted. The signal strength at which digital television service is deemed to be available for reception off-the-air is specified in section 73.622(e)(1) of the Commission's rules.

In the *Report and Order* in this proceeding, the Commission amended its rules to establish measurement procedures for measuring the strength of digital television signals received at individual locations. A copy of the *Report and Order* is available at: http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/FCC-10-195A1.pdf

2. General Information

The digital television signal strength measurement standards are based on the existing measurement standards used for years to measure analog television signal strength. To ensure accurate measurements, the rules specify procedures for making multiple outdoor measurements around a given location and then averaging the results. The procedures also allow for a choice of antenna (either a gain antenna or a half-wave dipole) and instrumentation, so long as the equipment is properly calibrated. In addition, the procedures specify how high to raise the antenna (6.1 meters for a single story structure and 9.1 meters for a two-story or taller structure) and provide that the antenna should be aimed to maximize the signal strength of the signal being tested, that measurements in inclement weather should be avoided, and that written records must be made of all relevant data.

3. What are the local market areas of network television stations?

The Commission's rules define local market areas as the 210 "Designated Market Areas" identified by the A.C. Nielsen Company. A satellite subscriber is eligible to receive the signal of a distant (out of market) network station from its satellite service if none of the stations affiliated with that network that are located in the subscriber's DMA provide a signal that meets the signal strength thresholds in section 73.622(e)(3) as determined by measurement.

4. Are separate measurements needed in the case of stations that broadcast multiple programs at the same time, i.e. provide multicast programming?

No. There is no need for multiple measurements for the same station to address multicast program streams. The measurement of digital television signal strength for a broadcast signal applies regardless of the content, including the presence of multicast program streams. If a measurement results in sufficient signal strength for a household to receive a station, then all of that station's program streams will be received equally.

5. What are the specific procedures for making measurements?

The measurements encompass several steps using good engineering practice:

1. Measurement locations. Multiple measurements are necessary at any given location to account for signal variability and multipath effects. A minimum of five locations as close as possible to the site's receiving antenna must be chosen. The locations shall be at least three meters apart and if possible, the first testing point should be chosen as the center point of a square whose corners are the four other locations. The median of the five measurements (in units of dB μ) is the value that is reported.

2. Testing instrumentation. Measurement equipment must be calibrated in accordance with the manufacturer's specifications. Testers must tune the calibrated instrument to the center of the channel being tested and measure the integrated average power over the full 6 megahertz bandwidth of the television signal. The intermediate frequency (i.f.) of the instrument should be set to 100 kilohertz unless the instrument is specifically designed by the manufacturer to use an alternative i.f. setting. The instrument must be capable of integrating over the selected i.f. for the 6 megahertz channel bandwidth.

3. Antenna. A calibrated gain antenna or half-wave dipole may be used. All measurements must be taken using a horizontally polarized antenna. The antenna must be raised to 6.1 meters (20 feet) for a one-story structure or 9.1 meters (30 feet) for a structure taller than one-story. The testing antenna must be oriented in the direction which maximizes the value of field strength for the signal being measured. If more than one station's signal is being measured, the testing antenna should be oriented separately for each station.

6. If a local station that could not be received at my location changes its transmitter so that its signal can now be received there, will I still be allowed to receive a distant network signal from my satellite service?

In cases where a location was measured and found to be unserved by a local network station, the Commission's rules allow households that are receiving a distant network signal to maintain their eligibility to receive a distant network signal if the station changes its signal coverage. This provision avoids disruption of the existing services to which households have been accustomed to receiving. It applies only in cases where the household already is receiving a distant signal from its satellite provider prior to a change in the coverage of the local station.

7. Where can I find documents about the measurement standards?

FCC order adopting the measurement standards: *Report and Order* in ET Docket No. 06-94, FCC 10-195, released November 23, 2010.

http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/DOC-302983A1.doc (Word)

http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/FCC-10-195A1.pdf (Acrobat)

http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/FCC-10-195A1.txt (Text)

Press Release:

http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/DOC-302983A1.doc (Word)

http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/DOC-302983A1.pdf (Acrobat)

http://www.fcc.gov/Daily_Releases/Daily_Business/2010/db1123/DOC-302983A1.txt (Text)